

**APPENDIX A      SCOPING LETTER**



**Department of Energy**

Golden Field Office  
1617 Cole Boulevard  
Golden, Colorado 80401-3305

April 2, 2007

**DISTRIBUTION LIST**

**SUBJECT:** Revised Request for Public and Agency Comments on the  
Proposed Renewable Fuel Heating Plant and Proposed Solar  
Energy Development Projects at The National Renewable Energy  
Laboratory's South Table Mountain Site

The U.S. Department of Energy (DOE), Golden Field Office, issued a Notice of Scoping on November 13, 2006 regarding our intent to prepare an Environmental Assessment (EA) for the proposed Renewable Fuel Heating Plant at the National Renewable Energy Laboratory's (NREL) South Table Mountain site near Golden, Colorado. Based on NREL's current site planning information, DOE has decided to expand the scope of the EA to include two solar energy projects at the South Table Mountain Site. Detailed descriptions of the site, the proposed Renewable Fuel Heating Plant, and the proposed solar energy development activities are included in the attachment to this letter.

NREL is a federally owned, contractor-operated research facility that supports renewable energy and energy efficiency technologies. DOE is the lead agency for this EA, and other federal, state, and local agencies are invited to participate in the environmental assessment process. DOE is requesting public input on the proposed NEPA process, proposed actions and alternatives, and the environmental issues to be addressed in the EA.

Pursuant to the requirements of the National Environmental Policy Act, the Council on Environmental Quality regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508), and DOE's implementing procedures for compliance with NEPA (10 CFR Part 1021), DOE is preparing a draft EA to:

- Identify any adverse environmental effects that cannot be avoided should this proposed action be implemented.
- Evaluate viable alternatives to the proposed action, including a no action alternative.

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- Describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity.
- Characterize any irreversible and irretrievable commitments of resources that would be involved should this proposed action be implemented.


DOE plans to complete the draft EA public review in June 2007. This letter and the draft EA, when it is available, will be posted in the DOE Golden Field Office electronic reading room: [http://www.eere.energy.gov/golden/reading\\_room.aspx](http://www.eere.energy.gov/golden/reading_room.aspx).

The DOE Golden Field Office welcomes your input throughout our NEPA process. Please direct your comments to:

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We look forward to hearing from you.

Sincerely,

  
for Jeffrey M. Baker  
Assistant Manager

Enclosure

cc: Steve Blazek  
NEPA Compliance Officer  
DOE/Golden Field Office

Maureen Jordan  
Senior Environmental Scientist  
NREL

**Attachment**

**PROPOSED RENEWABLE FUEL HEATING PLANT, SOLAR TECHNOLOGY  
ADVANCEMENT CENTER, AND SOLAR-ELECTRIC GENERATION PROJECT  
NATIONAL RENEWABLE ENERGY LABORATORY  
SOUTH TABLE MOUNTAIN SITE**

**SITE BACKGROUND AND DESCRIPTION**

The National Renewable Energy Laboratory (NREL) is one of twelve Department of Energy (DOE) national laboratories and is dedicated to the research, development, and deployment of renewable energy and energy efficiency technologies. The DOE Solar Energy Research Institute, founded in 1977, achieved national laboratory status and became NREL in 1991. The Midwest Research Institute operates NREL for DOE. The laboratory is comprised of three main sites: 1) South Table Mountain (STM); 2) Denver West Office Park (DWOP) and 3) The National Wind Technology Center (NWTC). The proposed Renewable Fuel Heating Plant (RFHP), Solar Technology Advancement Center, and Solar-Electric Generation Project at the STM site are the subjects of this scoping notice.

NREL conducts research activities at the STM site in support of the following DOE research programs:

- Solar Energy Technologies
- Geothermal Technologies
- Distributed Energy, Electrical Infrastructure and Reliability
- Biomass
- Industrial Technologies
- Freedom Car and Vehicle Technology
- Hydrogen, Fuel Cells and Infrastructure Technologies
- Buildings Technologies
- Weatherization and Intergovernmental Grants
- Federal Energy Management
- Other DOE Sponsored Programs
- Work for Others Supporting the DOE Mission

The 327-acre STM site is located on the southeast side of South Table Mountain, north of Interstate 70 and west of the Interstate 70 and Denver West Boulevard interchange in unincorporated Jefferson County, near Golden, Colorado (Legal description: Township 3 S, Range 70 W, Section 36, and Township 4 S, Range 70 W, Section 1) (See Figure 1). Only a portion of the site, 136 acres, is available for development. A total of 177 acres is protected by a conservation easement, and development on the remaining 14 acres is restricted by utility easements. The community of Pleasant View is adjacent to the southern border of the STM site. The STM site includes acreage on the South Table Mountain mesa top, slope, and toe, and was formerly part of the Colorado National

Guard facility at Camp George West. There are currently seven laboratory buildings, a few small test facilities, and several support buildings on the site.

The DWOP site also is in the vicinity of the Interstate 70-Denver West Boulevard interchange near Golden, Colorado. DOE and NREL occupy DWOP Buildings 15, 16, 17 and a small portion of 7 located at the eastern end of the office complex. The DWOP provides administrative offices and space for limited laboratory activity.

### **PURPOSE AND NEED**

A Site-Wide Environmental Assessment (EA) for the STM and the DWOP was prepared in 2003 that evaluated the existing and proposed facilities as well as the operation of the site. The 2003 Site-Wide EA provides an analytical superstructure under which the potential environmental impacts of the Proposed Action will be evaluated. While NREL is considering several other site development projects at this time, based on the availability of funds and project specific schedules, these projects are not ripe for NEPA review at this time and will not be evaluated in this EA.

This EA will provide an opportunity to review the collective potential effects of constructing and operating three new facilities: a Renewable Fuel Heating Plant (RFHP), a solar energy demonstration facility, and a solar-electric generation installation. The purpose and need for the Proposed Action is to 1) reduce NREL's use of natural gas by constructing and operating a facility that uses a renewable biomass fuel source (local wood waste) to produce hot water for NREL facilities, and 2) reduce NREL's demand for grid-provided electricity by installing facilities that demonstrate the effectiveness of on-site solar energy demonstration and electricity generation.

The proposed RFHP project is anticipated to reduce NREL's STM site natural gas consumption by up to 80% and provide NREL and DOE some measure of insulation from the volatility of natural gas prices. The project is also intended to be a showcase project to demonstrate the viability of wood-waste biomass fuels as an alternative to fossil fuel heating.

The proposed Solar Technology Advancement Center would provide a standardized test bed where laboratory and university research projects could be conducted, and would showcase solar technologies for residential, commercial, utility, and industrial applications.

The proposed Solar-Electric Generation Project would provide electricity for on-site laboratory use through the installation of an up to 1.2 Megawatt photovoltaic system on the STM mesa top. This is consistent with NREL's long-term site development plans and energy goals to increase on-site renewable energy generation at the laboratory.

### **PROPOSED ACTION AND ALTERNATIVES**

The following presents a summary of the Proposed Action and the No Action alternative descriptions.

### **Proposed Action**

#### Renewable Fuel Heating Plant

The Proposed Action is to construct and operate a Renewable Fuel Heating Plant (RFHP) at the South Table Mountain Site. The RFHP would use biomass as a fuel source for a new combustor and a heat recovery boiler to supply hot water for building heat to several facilities on the NREL Campus. The project would also include the installation of hot water distribution lines interconnecting the new facility to the Solar Energy Research Facility (SERF) central plant and the Field Test Laboratory Building (FTLB) central plant.

The proposed plant would be located behind (north of) the existing FTLB and adjacent to the existing service road. The new building would be approximately 2500 square feet and would be constructed of architectural cement block with a finish to match the existing FTLB. The building would be rectangular with a flat roof and would contain three rooms: the fuel storage area, the combustion area, and a small control room. The fuel storage area would provide enough space to hold 4 – 7 days of fuel. The RFHP would require the construction of a new driveway and turnaround to service the facility.

The proposed RFHP would use biomass (wood chips) to fuel a specialized combustor and a heat recovery boiler to supply hot water to the NREL Campus. The system would have the capacity to generate 9-10 MBtu/hr of energy, or approximately 750 gallons per minute of hot water to the buildings. The new boiler would serve as the primary source of heating water to the existing FTLB, SERF, Science and Technology Facility (S&TF), smaller existing facilities, and potentially other facilities to be constructed in the future, during the heating months. The existing boilers would be utilized to provide additional heat as required to either supplement the RFHP load or to provide backup if the combustor is off line.

The fuel would come from a local supplier. The supplier would provide fuel composed of local wood waste such as construction waste, yard trimmings, pallets and also local forest thinning waste. The fuel would be delivered to the site using trucks. On average, one truck delivery would be required per weekday during the heating months. Ash produced from the unit would be transferred to a storage bin for offsite disposal.

#### Solar Technology Advancement Center (SolarTAC)

The SolarTAC Center would be an outdoor area showcasing and testing solar equipment. This area would include residential photovoltaic (PV) systems, utility PV systems not requiring special safety precautions, stand-alone PV systems (e.g., bus-stop shelters, remote lighting), and similar systems. The equipment would be provided by a solar company or developer or purchased by SolarTAC.

The SolarTAC Center at NREL would require:

- An outdoor area of about 2 acres located east of the NREL Visitor Center on DOE property outside the NREL security boundary (Figure 2)
- Suitable ground surfaces for installing PV systems
- Walkways (wheelchair accessible)
- Electrical, data, telecomm lines, water, and sewer

- Demarcation fencing, signage, security camera, security lighting
- Expanded parking capacity at the Visitor's Center

The scope of equipment to be researched, tested, or showcased through SolarTAC includes solar panels, components, and systems of all types. These could include flat-panel photovoltaic (PV), concentrating PV, flat-panel solar thermal, and concentrating solar thermal. Initially, it is expected that there would be a variety of system sizes from 1kW up to 50kW and include inverters and related system components.

#### Solar-Electric Generation Project

DOE/NREL propose to use a third-party developer for the design and installation of a PV system that would generate electrical energy that would be used on-site by NREL. The PV system would generate electricity, measured in kilowatt-hours (kWh) and renewable energy certificates (RECs). NREL would purchase the electricity only, and Xcel Energy would likely be purchasing the RECs. The anticipated length of the contract for operation of the system is 20 years. If the equipment is still viable at the end of that 20-year period, it may continue to be used on-site.

The system is anticipated to be a single axis tracking and/or fixed tilt PV system design. The maximum allowable PV panel height is eight (8) feet above the ground to minimize visual impact of the PV system. Two-Axis tracking and concentrating designs are not expected to be used for this project.

The PV system would be procured, financed, installed, owned, operated and maintained by a third-party developer. The Contractor would be provided use of the DOE land through a long-term use arrangement.

The proposed location for the system would be on the South Table Mountain mesa top (Figure 2). It would be enclosed by a fence similar to the existing fence surrounding NREL mesa top facilities: six-foot chain link fence with three strands of barbed wire on top. The proposed installation would be located on approximately five acres of flat land north of the existing Solar Radiation Research Laboratory and Solar Furnace buildings. There is existing road access, and it is likely that a service drive will be needed within the 5-acre site. The surface of the drive would be permeable material, such as road base or gravel.

Interconnection would be through an existing, spare 13.2 kV/480V three-phase transformer with a 1 MW capacity. This transformer is in the middle of the proposed PV site so there will be minimal electrical infrastructure required between the PV system and the transformer. The transformer ties into the NREL 13.2 kV distribution system that feeds all NREL STM loads. Cables are expected to be installed either on the ground surface or underground. No overhead lines or utility poles are anticipated.

Security lighting is expected to be required. NREL would install lighting similar to lights currently installed at NREL's existing mesa top facilities: a motion sensor would be installed on each light, with the timer set at a relatively short interval, such as the current interval of five minutes.

#### **No Action**

The No Action Alternative would leave the site in its current configuration, add no new facilities, and maintain current levels of research, operation and management activities. Therefore, the existing site and activities provide the baseline condition for the environmental impact analysis.

#### **ENVIRONMENTAL TOPICS TO BE ADDRESSED**

The draft EA will address direct, indirect, and cumulative impacts of the Proposed Action and alternatives. Beneficial and adverse, on-site and off-site, construction, demolition, and operation and maintenance impacts will be discussed, as appropriate. The environmental topics to be addressed in the EA include:

- Land Use, Planning, Socioeconomics and Public Policy
- Traffic and Circulation
- Air Quality and Noise
- Visual Quality/Aesthetics
- Water Resources
- Soils and Geology
- Biological Resources
- Cultural Resources
- Waste Management
- Public Facilities, Services and Utilities
- Energy
- Sustainability

#### **SCHEDULE**

DOE anticipates public distribution of the Draft EA in June 2007. Comments are welcome throughout the EA process. No formal public scoping meeting is currently planned for this project. This letter and the draft EA, when available, will be posted in the Golden Field Office electronic reading room: [http://www.eere.energy.gov/golden/reading\\_room.aspx](http://www.eere.energy.gov/golden/reading_room.aspx).

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#### **FIGURES:**

Figure 1 Regional Location Map, South Table Mountain Site  
Figure 2 Proposed Project Site Locations

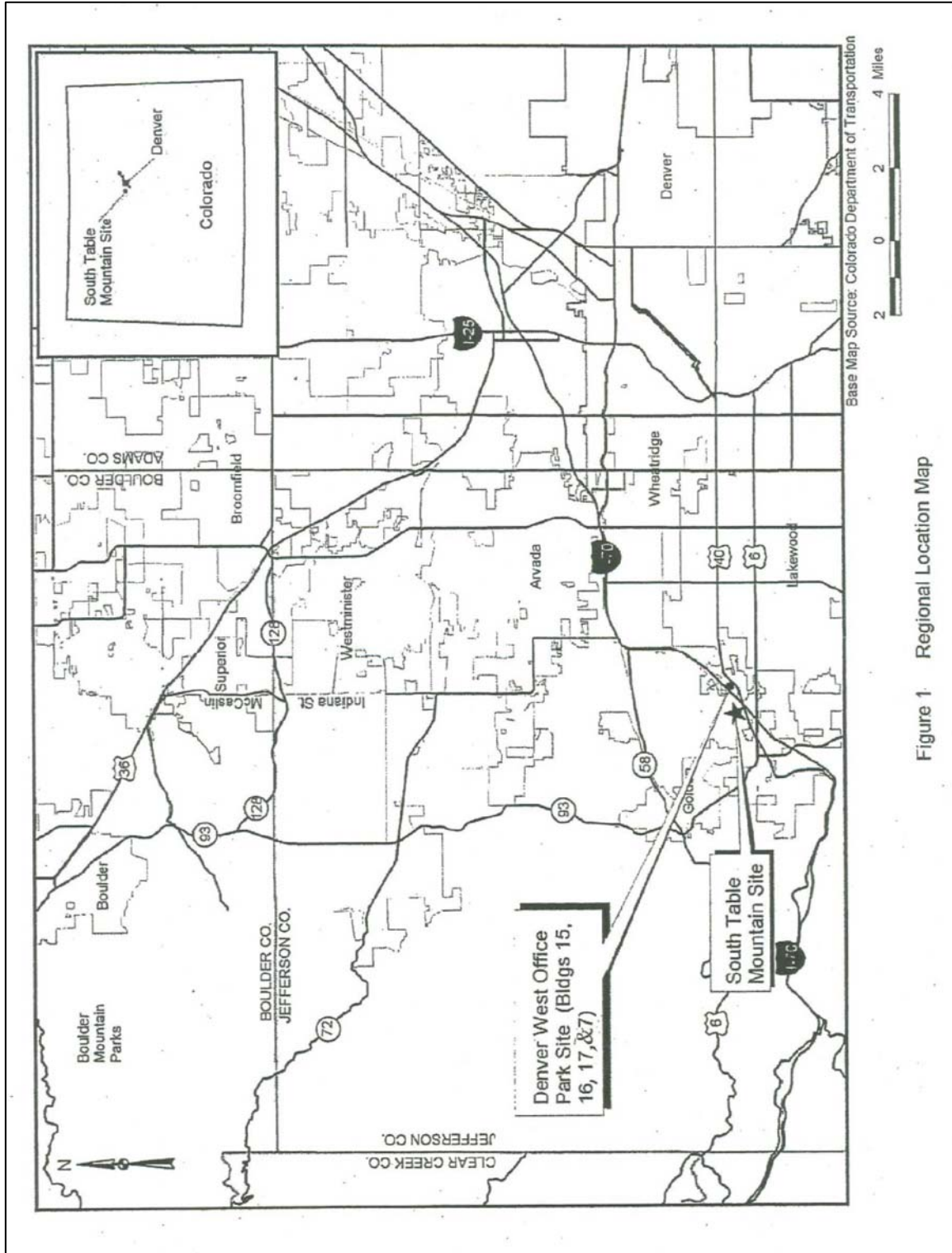


Figure 1 Regional Location Map

Final Environmental Assessment of Three Site Development Projects  
at the National Renewable Energy Laboratory South Table Mountain Site

